

What Is Claimed Is:

1. An ice dispensing chute assembly for dispensing ice into a receptacle, comprising:

an ice chute having a lower ice discharge end and an upper ice inlet end for being secured to an ice retaining bin at an ice outlet opening from the bin;

an actuating arm pivotally connected to said ice chute and having a cam contacting portion and a receptacle contacting portion for being contacted and moved by a receptacle into which ice is to be dispensed to pivot said actuating arm for rotation relative to said ice chute;

an ice gate retained at said ice chute upper inlet end for linear movement between open and closed positions to respectively establish and interrupt communication between said ice chute inlet end and the ice outlet opening from the ice retaining bin; and

linkage mechanism means for being contacted and moved by said actuating arm cam contacting portion and coupled to said ice gate for linearly moving said ice gate between said open and closed positions, said linkage mechanism means translating rotational movement of said actuating arm into linear movement of said ice gate between said open and closed positions.

2. An ice dispensing chute assembly as in claim 1, said linkage mechanism means including crank means pivotally connected to said ice chute and for being contacted and rotated relative to said ice chute by said cam contacting portion of said actuating arm upon rotation of said actuating arm, elongate slider means pivotally and slidably connected toward one end thereof to said ice chute and coupled to said crank

means intermediate said one end and an opposite end thereof for rotation of said slider
means about said one end thereof upon rotation of said crank means, and means for
coupling said opposite end of said slider means to said ice gate for linearly moving said
ice gate between said open and closed positions in response to rotation of said slider
means in first and second directions of rotation.

3. An ice dispensing chute assembly as in claim 2, wherein said means for
coupling said opposite end of said slider means to said ice gate comprises a block
pivotally attached to said opposite end of said slider means for rotation about an axis
extending perpendicular to the plane of rotation of said slider means and having a
passage extending therethrough parallel to the plane of rotation of said slider means,
and a pin connected to said ice gate and received for lifting and sliding movement in
said block passage.

4. An ice dispensing chute assembly as in claim 1, wherein said ice chute
comprises upper and lower ice chute parts that are releasably secured together.

5. An ice dispensing chute assembly as in claim 1, wherein said upper end of
said ice chute has a ramp across which ice particles from the ice bin flow for imparting
to the ice particles a trajectory through and out of said discharge end of said chute such
that the ice particles are guided to remain out of contact with inner surfaces of said
chute.

6. An ice dispensing chute assembly for dispensing ice into a receptacle,
comprising:

an ice chute having a lower ice discharge end and an upper ice inlet end for
being secured to an ice retaining bin at an ice outlet opening from the bin;

an elongate actuating arm pivotally connected intermediate its length to a lower side of said ice chute and having cam contacting means at an upper end and receptacle contacting means at a lower end, said receptacle contacting means for being engaged and moved by an ice receiving receptacle that is manually moved against said lower end to rotate said actuating arm;

a crank assembly pivotally connected to an upper side of said ice chute and having crank arm means for being engaged and moved by said actuating arm cam contacting means to rotate said crank assembly upon rotation of said actuating arm;

ice gate means at said ice chute upper inlet end for linear movement between positions establishing and interrupting communication between the ice bin ice outlet opening and said ice chute inlet end; and

elongate slider link means pivotally and slidingly connected toward one end to said upper side of said ice chute for pivotal and sliding movement about said one end relative to said ice chute, pivotally and slidingly connected toward an opposite end to said ice gate means for pivotal and sliding movement of said opposite end relative to said ice gate means and for linearly moving said ice gate means between said positions establishing and interrupting communication between the ice bin ice outlet opening and said ice chute inlet end, and pivotally connected intermediate its ends to said crank assembly so that, upon rotation of said crank assembly, said crank assembly acts upon said elongate slider link means to rotate said elongate slider link means about said one end and to linearly move said gate means at said opposite end of said elongate slider link means between said positions establishing and interrupting communication between the ice bin ice outlet opening and said ice chute inlet end, said linear sliding

movement of said slider link means at said one end thereof relative to said ice chute and at said opposite end thereof relative to said ice gate means during rotation of said slider link means accommodating translation of the rotary motion of said crank assembly and said elongate slider link means to linear movement of said ice gate means.

7. An ice dispensing chute assembly as in claim 6, wherein said ice chute comprises separate upper and lower ice chute portions and means for releasably connecting together said upper and lower ice chute portions to form said ice chute.

8. An ice dispensing chute assembly as in claim 6, wherein said ice chute has a downward sloping ramp at said upper ice inlet end of said chute for receiving ice particles from the ice retaining bin ice outlet for gravity conveyance of the ice particles along and off of said ramp and through said ice chute to said lower ice discharge end of said ice chute, said ramp and ice chute being configured such that the majority of ice particles leaving said ramp have a parabolic trajectory of travel through said ice chute such that the ice particles do not contact inside surfaces of said ice chute before exiting said lower ice discharge end of said ice chute for flow into the receptacle.

9. An ice dispensing chute assembly as in claim 6, wherein said elongate actuating arm is pivotally connected to said lower side of said ice chute by a pin on one of said actuating arm and ice chute and by pin retainer means on the other of said actuating arm and ice chute, said pin being received and rotatable in said retainer means.

10. An ice dispensing chute assembly as in claim 9, wherein said pin is on said actuating arm and said pin retainer means is on said lower side of said ice chute.

11. An ice dispensing chute assembly as in claim 6, wherein said cam contacting

means of said actuating arm comprises a pair of cam contacting arms on an upper side of said pivotal connection of said actuating arm to said ice chute and extending upward in spaced relationship for engaging, upon rotation of said actuating arm by a receptacle, corresponding surfaces of said crank assembly to rotate said crank assembly.

12. An ice dispensing chute assembly as in claim 6, wherein said crank assembly comprises a pair of cranks for being engaged and moved by said actuating arm cam contacting means and said crank assembly is pivotally connected to said ice chute by a pin on one of said crank assembly and ice chute and by retainer means on the other of said crank assembly and ice chute, said pin being received and rotatable in said retainer means.

13. An ice dispensing chute assembly as in claim 12, wherein said pin is on said crank assembly and extends between said pair of cranks.

14. An ice dispensing chute assembly as in claim 6, wherein said crank assembly includes a pin extending generally parallel to an axis of rotation of said crank assembly, and said elongate slider link means is pivotally connected intermediate its ends to said crank assembly by pivotal connection of said slider link means to said pin of said crank assembly.

15. An ice dispensing chute assembly as in claim 6, wherein said ice gate means comprises a generally planar plate that is linearly moved to a position across and closing said ice chute ice inlet end and a position remote from and opening said ice chute ice inlet end.

16. An ice dispensing chute assembly as in claim 15, wherein said ice gate means includes a pin extending outward from said planar plate, said pin being received by

said opposite end of said elongate slider link means for being linearly moved thereby while accommodating relative sliding movement with respect thereto, whereby said slider link means linearly moves said pin and thereby linearly moves said ice gate means planar plate between said positions closing and opening said ice chute inlet end.

17. An ice dispensing chute assembly as in claim 6, wherein said elongate slider link means is pivotally and slidingly connected toward said opposite end thereof to said ice gate means by a block pivotally attached to said opposite end of said slider link means for rotation about an axis extending perpendicular to a plane of rotation of said slider link means and having a passage extending therethrough parallel to said plane of rotation of said slider link means, and by a pin of said ice gate means that is slidably received in said block passage.

18. An ice dispensing chute assembly as in claim 6, wherein said slider link means is pivotally and slidingly connected toward said one end thereof to said upper side of said chute by a pin on one of said slider link means and said ice chute and by a slide slot on the other of said slider link means and said ice chute, said pin being received for rotation and sliding movement in said slide slot.

19. An ice dispensing chute assembly as in claim 18, wherein said slide slot is on said slider link means and said pin is on said ice chute.

20. An ice dispensing chute assembly as in claim 6, wherein said elongate slider link means is pivotally connected intermediate its ends to said crank assembly by a pin on one of said elongate slider link means and said crank assembly and a pivot slot on the other of said elongate slider link means and said crank assembly, said pin being received in said pivot slot.

21. An ice dispensing chute assembly as in claim 20, wherein said pin is on said crank assembly and said pivot slot is on said elongate slider link means.